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School Dropout in Romania at the Level of Disadvantaged Groups

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Abstract

The analysis of the school dropout phenomenon at the level of disadvantaged population raises a series of issues in official statistics in Romania because there are no statistics on the school dropout on population grouped by nationality. More, for Roma population there is the practice of early studies abandon by some youngsters. For this reason, this study will be highlighted on the drop-out characteristics of the Roma population using a series of statistical methods. The main objective of this study is to determine to what extent school dropout rate is different for the Roma population compared with total population from four development regions from northern Romania. For the analysis were used the following methods: regression method and statistical data grouping method. To estimate the model parameters were used data series on school dropout rate by type of education at counties level for the period 2000-2009 and recorded data from the 2002 Population Census. The obtained results allow us to assert that the school dropout rate is higher in most of the counties that have a higher proportion of Roma population in total population. In general, the Roma population is more vulnerable to school dropout than other populations.

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1. Introduction

In Europe, Romania, along with Malta, Portugal and Spain, is ranked among the countries with the highest school dropout rate. Equally, at Romania's level, there is an important community of Roma population.

Roma population, according to the data from the latest population Census from 2002, counted 535140 persons, representing 2.5% from the total Romanian population. This population is differently distributed on the localities from urban and rural environment. Moreover, this distribution differs significantly from that of the entire population of Romania. Table 1 shows the distribution of the two populations on the two areas compared with data from the last population Census. Data from the above table shows that the Roma population lives in a higher proportion in rural areas. This feature will be considered in the analysis of school dropout for the four development regions from the north of the country (Andrei, 2009).

The analysis of Roma population school dropout is based on the following hypotheses: early school abandon is a complex phenomenon, which is determined by a series of factors related to the economic, social and cultural environment, to the community and family traditions etc.; the evaluation of school dropout on every type of population must be realized on every form of education because a child's behavior in relation to school is different

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depending on his age; the school dropout evaluation on each type of population is recommended to be realized for a certain period of time to identify trends; on each level of aggregation (county, regional and national) the analysis must be conducted on different populations of pupils structured by sex and urban or rural areas where the institution of education is situated; there is no statistical data for direct evaluation of school dropout for Roma population.

Table 1. The Romanian and Roma population characteristics

	Total population	Roma population	Population structure (%)	
			Romania	Roma population
Municipalities and cities	11435080	208948	52.74	39.05
Communities	10245894	326192	47.26	60.95
Romania	21680974	535140	100.00	100.00

2. Method

The analysis of school dropout characteristics on population categories grouped by nationality raises a number of problems. In official statistics there is no statistical data concerning the school dropout size for the Romanian population structured on this criteria (INS, 1995-2010). For this reason, in this study will be highlighted school dropout characteristics of the Roma population using a number of statistical methods. These methods will be applied to the following types of data sets, defined at the northern counties level:

- data series used to analyze the distribution of the Roma population from the north area of the country on the following criteria: on counties, on the two areas (urban and rural), on some localities from the area where the share of the Roma population is higher than a certain value (5% for urban area and 10% for rural area);
- data series used to characterize the school dropout for the northern districts of the country, while the pupils are arranged by the type of education (primary, secondary and vocational), on sex the and on the two environments (urban and rural).

The main objective of this paper is to determine to what extent the school dropout rate is different for the Roma population compared to the total population for the north area of Romania.

For the choice of methods to ensure the formulation of comments in order to achieve this goal was taken into account of the available data. For this reason, the following two methods are used:

- the regression method, which is used to determine whether, based on a variable that characterizes school dropout for the counties from the area and the share of the Roma population in the county population, a regression model can be defined;
- statistical grouping method, which is applied to determine different equivalence groups for the northern districts of the country.

To achieve the analysis at local level (regional, county and township) we used data from the four development regions and from the counties within them: the North-Eastern Region (Iasi, Botosani, Neamt, Suceava, Bacau, Vaslui), Western Region (Arad, Caras-Severin, Hunedoara and Timis) North-Western Region (Bihor, Bistrita-Nasaud, Cluj, Maramures, Satu Mare and Salaj) Central Region (Alba, Sibiu, Mures, Harghita, Covasna , Brasov).

3. Results

Using data from the statistics published by the National Institute of Statistics (INS, 1995-2010) we are trying to establish whether the size of the school dropout at counties level from the northern area of the country is also largely determined by the size of the Roma population at county level (Andrei, 2010).

An important indicator to characterize the regional distribution of Roma population by county is Roma population deviation from each county share from the national share of this population. Since at national level, the share of the Roma population is 2.47%, the value of this indicator was calculated for each county based on the following relationship:

$$\text{County deviation from national share} = \text{Roma population share in county population} - 2.47\%$$

Based on the above results, a grouping of the counties from the northern area of the country on four groups of equivalence was done. The grouping results are presented in Table 2.

Table 2. Grouping of counties in relation to the share of Roma population

Group	Counties
Under -1%	A reduced Roma population
-1% - 0	A moderate reduced Roma population
0-1%	A pretty significant Roma population
1% - 3%	An important Roma population
Over 2%	A very important Roma population

To characterize the school dropout size from each county in relation to the size of this phenomenon at national level we calculated for each county the school dropout rate deviation from the indicator value registered at the national level. Since, for the 2008-2009 school year, the value was 1.7%, the above indicator is calculated using the following relationship:

$$\text{School dropout deviation} = \text{School dropout deviation at county level} - 1.7$$

For the 2008-2009 school year we obtained the results presented in Table 3. The indicator is calculated for the school dropout rate for grades 1-8 (primary and secondary education) for the 2008-2009 school year.

Table 3. Grouping of counties in relation to school dropout for school year 2008-2009

Group	Counties
-1% - 0	A moderate reduced school dropout
0-1%	A high school dropout
Over 1%	A very high school dropout

The school dropout at counties level from the northern area of the country is estimated related to the Roma population share in the total population of the county. In this case, the following regression model is defined:

$$R_PG2009_i = b + a R_Rom_i + \varepsilon_i$$

where: R_PG2009_i – school dropout rate for primary and secondary education for 2008-2009 school year, R_Rom_i – Roma population share at county level in total population and ε_i – error, having zero mean and constant variance. The obtained results are presented in Table 4.

Table 4. The regression model characteristics for school year 2008-2009

Variable	Coefficient	Std. Error	t-Statistic	Prob.
R_ROM	0.44	0.074	5.89	0.00

In a similar manner is defined a linear regression model which explains the school dropout out rate for the 2007-2008 school year according to the share of Roma population in the county population. The results are presented in Table 5.

Table 5. The regression model characteristics for school year 2007-2008

Variable	Coefficient	Std. Error	t-Statistic	Prob.
R_ROM	0.55	0.090	6.07	0.00

The school dropout rate for primary and secondary education is higher for the counties where the share of Roma

population in the total county population is higher.

To estimate the model for the population from the urban area it should be considered as a model dependent variable the school dropout rate from urban areas for a certain form of education (grades 1-8, primary and secondary education) and as independent variable the share of Roma population in the population from urban area.

For the model defined for the population from rural area, the dependent variable is the school dropout rate from rural area for a certain form of education (grades 1-8, primary and secondary education) and the independent variable is the share of Roma population in the population from rural area. (World Bank, 2002).

The parameter estimation was realized using data series defined for the counties from this country region. Parameter estimation was done by applying least squares method and the results are presented in Tables 6 (for urban area) and 7 (for rural area).

Table 6. The estimation of model parameters for the population from urban area

	Grades 1-8		Primary education		Secondary education	
	With intercept	Without intercept	With intercept	Without intercept	With intercept	Without intercept
a	1.18* (0.292)		1.07* (0.283)	1.18* (0.292)		1.07* (0.283)
b	0.07 (0.059)	0.27* (0.046)	0.07 (0.058)	0.07 (0.059)	0.27* (0.046)	0.07 (0.058)
R ²	0.08		0.09	0.08		0.09

* $\alpha < 0.01$, ** $\alpha < 0.1$

Table 7. The estimation of model parameters for the population from rural area

	Grades 1-8		Primary education		Secondary education	
	With intercept	Without intercept	With intercept	Without intercept	With intercept	Without intercept
A	2.88* (0.702)		2.48* (0.705)		3.34* (0.740)	
B	-0.36 (0.351)	0.94* (0.198)	-0.33 (0.353)	0.78* (0.186)	-0.41 (0.370)	1.10* (0.218)
R ²	0.10		0.09		0.09	

* $\alpha < 0.01$, ** $\alpha < 0.1$

4. Conclusions

Based on the obtained results, a number of comments on school dropout among the Roma population for the northern area of the country are formulated.

It should be noted that the highest school dropout rate is registered in Sibiu (2.9% for grades 1-8, 2.6% for primary education and 3.3% for secondary education), county that is characterized by a high share of Roma population (4.06%).

The county with the highest share of Roma population in the county total population is Mures county (6.96%), which has a moderate school dropout rate, which is equal to 1.4% in the 2008-2009 school year and to 1.6% in the 2007-2008 school year.

To determine whether the school dropout rate is higher in counties where Roma population is larger in Table 8 is presented a grouping of counties on the five groups in relation with the size of the Roma population. For counties from each group is calculated the average school dropout rate for the 2007-2008 and 2008-2009 school years. The results were presented in Table 8.

Table 8. Counties distribution by the Roma population number

No. Crt.	Groups of counties by Roma population number	Number of counties	Counties	Average rate of school dropout 2008-2009 (%)	Average rate of school dropout 2007-2008 (%)
1	Under 5000	3	Arad, Harghita and Bihor	1.67	1.83
2	5001-10000	7	Bacau, Satu-Mare, Bistrita – Nasaud, Botosani, Hunedoara, Maramures and Timiș	1.57	2.06
3	10001-20000	10	Cluj, Brasov, Mures, Salaj, Neamt, Iasi, Alba, Sibiu, Caras-Severin and Suceava	1.52	2.02
4	20001-30000	1	Vaslui	1.70	1.60
5	30001-40000	1	Covasna	2.40	2.20
Total		20	-	-	-

The obtained results allow us to assert that the school dropout rate is higher in most counties that have a higher proportion of Roma population. However, to explain the school dropout variation from one district to another, must be taken into account other economic and social factors (OECD, 2000).

School dropout rate at secondary school level (grades 5-8) during the school year is determined in a significant measure by the characteristics of school dropout at primary school level. In general, in the counties in which the school dropout rate at primary school level is higher, are registered higher values also of the school dropout rate for secondary education.

School dropout rate for primary and secondary education is higher for the counties where the share of Roma population in the total county population is higher.

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